

day, user's relative location, etc.) that the Dining Room is more likely to be the target device (or region) than the Living Room. In the second stage **1740**, the positions of control elements do not change, but now the control element **1716** for the Dining Room is highlighted instead of the control element **1712** for the Living Room. GUIs in accordance with some embodiments of the invention can implement various different approaches to emphasizing a target device, such as (but not limited to) displaying a limited (e.g., the top n) list of target devices, reducing the contrast of non-target devices, displaying target devices in a different color and/or size, placement of controls for predicted target devices within the display, etc.

[0275] Although specific examples of a GUI are illustrated in FIGS. **17A-B**, any of a variety of such GUIs can be utilized to perform processes similar to those described herein as appropriate to the requirements of specific applications in accordance with embodiments.

V. CONCLUSION

[0276] The description above discloses, among other things, various example systems, methods, apparatus, and articles of manufacture including, among other components, firmware and/or software executed on hardware. It is understood that such examples are merely illustrative and should not be considered as limiting. For example, it is contemplated that any or all of the firmware, hardware, and/or software aspects or components can be embodied exclusively in hardware, exclusively in software, exclusively in firmware, or in any combination of hardware, software, and/or firmware. Accordingly, the examples provided are not the only way(s) to implement such systems, methods, apparatus, and/or articles of manufacture.

[0277] In addition to the examples described herein with respect to stationary playback devices, embodiments of the present technology can be applied to headphones, earbuds, or other in- or over-ear playback devices. For example, such in- or over-ear playback devices can include noise-cancellation functionality to reduce the user's perception of outside noise during playback. In some embodiments, noise classification can be used to modulate noise cancellation under certain conditions. For example, if a user is listening to music with noise-cancelling headphones, the noise cancellation feature may be temporarily disabled or down-regulated when a user's doorbell rings. Alternatively or additionally, the playback volume may be adjusted based on detection of the doorbell chime. By detecting the sound of the doorbell (e.g., by correctly classifying the doorbell based on received sound metadata), the noise cancellation functionality can be modified so that the user is able to hear the doorbell even while wearing noise-cancelling headphones. Various other approaches can be used to modulate performance parameters of headphones or other such devices based on the noise classification techniques described herein.

[0278] The specification is presented largely in terms of illustrative environments, systems, procedures, steps, logic blocks, processing, and other symbolic representations that directly or indirectly resemble the operations of data processing devices coupled to networks. These process descriptions and representations are typically used by those skilled in the art to most effectively convey the substance of their work to others skilled in the art. Numerous specific details are set forth to provide a thorough understanding of the

present disclosure. However, it is understood to those skilled in the art that certain embodiments of the present disclosure can be practiced without certain, specific details. In other instances, well known methods, procedures, components, and circuitry have not been described in detail to avoid unnecessarily obscuring aspects of the embodiments. Accordingly, the scope of the present disclosure is defined by the appended claims rather than the forgoing description of embodiments.

[0279] When any of the appended claims are read to cover a purely software and/or firmware implementation, at least one of the elements in at least one example is hereby expressly defined to include a tangible, non-transitory medium such as a memory, DVD, CD, Blu-ray, and so on, storing the software and/or firmware.

1. A method for training a prediction model in a media playback system, the method comprising:

receiving context data for a portable device in the media playback system, wherein the context data comprises localization data that describes a location of the portable device;

identifying a predicted stationary playback device from a plurality of stationary playback devices that is predicted based on the context data using a prediction model;

receiving input identifying a target stationary playback device from the plurality of stationary playback devices;

generating training data based on the predicted stationary playback device and the received input; and
updating the prediction model based on the generated training data.

2. The method of claim 1, wherein the localization data comprises a matrix of probabilities.

3. The method of claim 1, wherein selecting the predicted stationary playback device comprises:

providing a set of inputs to the prediction model, the set of inputs comprising the received localization data; and
generating probabilities for each stationary playback device of the plurality of stationary playback devices using the prediction model.

4. The method of claim 1, wherein selecting the predicted stationary playback device further comprises selecting the stationary playback device with a highest probability.

5. The method of claim 4, wherein selecting the predicted stationary playback device further comprises transmitting a control signal to the predicted stationary playback device.

6. The method of claim 1, wherein selecting the predicted stationary playback device further comprises:

ranking at least a subset of the plurality of stationary playback devices based on the generated probabilities; and

providing an ordered listing of the plurality of stationary playback devices to the portable device based on the ranking, wherein the portable device presents the ordered listing in a user interface of the portable device.

7. The method of claim 1, wherein receiving input identifying a target stationary playback device comprises receiving a control command from the target stationary playback device.

8. The method of claim 1, wherein receiving input identifying a target stationary playback device comprises receiving a selection of the target stationary playback device from the portable device.